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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/815,884	03/23/2001	Harlan Theodore Jacobs	1327.011US1	7390

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EXAMINER	
JACKSON, BLANE J	

ART UNIT	PAPER NUMBER
2685	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/815,884	JACOBS ET AL.	
	Examiner	Art Unit	
	Blane J Jackson	2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5,8*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-9, 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuttle et al. (U.S. Patent 6,078,791) with a view to Kwak et al. (U.S. Patent 6,280,875).

As to claims 1 and 11, Tuttle teaches a method for making an integrated combined battery and wireless communications device (structure and fabrication, column 8, line 37 to column 9, line 58), the apparatus comprising:

A support structure (figure 2, Support Layer (30)),

A first conductive layer deposited on a first surface area of the support structure (column 7, lines 31-38),

A thin film battery (figures 1B, 2 batteries (38) and (40), column 4, lines 5-21, column 7, lines 39-44),

An antenna mounted to the support structure (figure 1B, antenna (19), column 2, lines 51-57, figure 3, column 7, lines 61-67,column 12, lines 34-39, and

An electronic communications circuit mounted to the support structure and electrically coupled to the battery and the antenna to transceiver radio communications

(figure 1B, Integrated Circuit (IC) (32), column 7, lines 53-60, column 5, lines 66 to column 6, line 42).

Tuttle teaches a thin-film battery but does not teach the thin-film battery comprising a cathode layer: a solid-state electrolyte layer, and an anode layer deposited such that either the anode layer or the cathode layer is in electrical contact with the first conductive layer, and the electrolyte layer in contact with and completely separating the anode layer and the cathode layer.

Kwak teaches a thin film battery to operate small power devices such as micro machines, digital wrist watches and hearing aids where a typical thin-film rechargeable battery incorporates a metallic substrate to support layered components including in series, a metal oxide layer, a first electrode current collector, a first electrode, an electrolyte layer, a second electrode current collector and a second electrode layer where the electrolyte is in contact with and completely separating the anode layer and the cathode layer (figure 3, column 2, lines 24-40 and column 4, line 54 to column 5, line16). It would have been obvious to one of ordinary skill in the art at the time of the invention realize in the design of Tuttle the battery architecture as discussed by Kwak since the arrangement of the layered components and the materials that comprise each individual layer play an important role in determining the specific capacity, the utility, and the performance of the battery cell.

As to claims 3, 4, and 13-15, Tuttle does not teach the cathode layer comprises a lithium intercalation material or lithium cobalt oxide deposited on the first conductive layer and the electrolyte layer comprises Lipon.

Kwak teaches a battery structure (figure 3, (20)), where the cathode layer comprises a lithium intercalation material or lithium cobalt oxide deposited on the first conductive layer and the electrolyte layer comprises Lipon (figure 3, column 5, line 17 to column 6, line 67). It would have been obvious to one of ordinary skill in the art at the time of the invention realize in the design of Tuttle the battery architecture as discussed by Kwak since the arrangement of the layered components and the materials that comprise each individual layer play an important role in determining the specific capacity, the utility, and the performance of the battery cell.

As to claims 5 and 16, Tuttle teaches the assembly includes a rigid or flexible thin film support member having an integrated circuits, antenna and thin film batteries disposed thereon (column 4, lines 5-21) where the flexible support member would inherently bend to match a curved shape.

As to claims 6-8 and 17-19, Tuttle teaches the antenna is incorporated within the IC or adjacent to the IC within a predetermined area of the thin support member (column 4, lines 5-14) and the antenna in another alternate and equivalent embodiment is formed on the outer surface or within the outer film (column 12, lines 28-46). Tuttle also teaches other antenna configurations in association with the battery to improve the

performance of the antenna (column 12, lines 1-8). Even though Tuttle does not specifically teach the antenna is deposited on the battery, it would have been obvious to one of ordinary skill in the art at the time of the invention to position the antenna as taught by Tuttle in an alternative position to best effect fabrication and performance considerations.

As to claims 9 and 20, Tuttle teaches wherein the electronic circuit includes a recharging circuit that recharges the battery using energy received by the antenna (figure 9, the "battery" being a charge on capacitor (148) is maintained by conventional RF charging circuits on IC (150), energized from a remote source, column 10, lines 37-48).

2. Claims 2, 12, 21-26 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuttle et al. (U.S. Patent 6,078,791) and Kwak et al. (U.S. Patent 6,208,875) with a view to Little (U.S. Patent 4,740,431).

As to claims 2 and 12, Kwak of Tuttle modified teaches a thin film rechargeable battery where the anode and cathode layers may be formed from any suitable material including lithium (column 4, lines 40-65 and column 6, lines 31-67) does not teach wherein the anode or the cathode or both include an intercalation material or a metal or both.

Little teaches an integrated thin film photovoltaic (solar cell) and battery and discusses the need to suppress the formation of dendrite on the anodes of lithium

batteries by the use of certain lithium alloys or by employing an intercalation compound as the anode (column 3, lines 40-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to recognize in the lithium battery of Tuttle modified the particular lithium alloys or compounds in lieu of pure lithium as taught by Little such that the lithium battery may be rechargeable rather than disposed when depleted.

As to claim 21, Tuttle of Tuttle modified, with respect to claim 11, teaches a passive device where the operating power is provide by a capacitor structure located beneath the IC where a charge on the capacitor is maintained by conventional RF charging circuits on the IC which are energized from a remote source (column 10, lines 37-48). Tuttle modified does not teach the recharging circuit recharges a specific battery using energy received by a photovoltaic cell.

Little teaches an integrated thin film photovoltaic (solar cell) and battery that are made by employing thin film deposition techniques on a substrate (figure 1, column 2, lines 35-68). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tuttle modified with the photovoltaic of Little as a simple integrated means to recharge the battery in battery based products including, radio transceivers, portable computers, watches and calculators.

As to claims 22, 25, 26 and 31-33, Tuttle teaches a thin film construction including a battery and wireless recharging apparatus comprising:

A support structure (figure 2, Support Layer (30)),

A first conductive layer deposited on a first surface area of the support structure (column 7, lines 31-38),

A thin film battery (figures 1B, 2 batteries (38) and (40), column 4, lines 5-21, column 7, lines 39-44),

An energy receiving device mounted to the support structure (the energy receiving device being an antenna (figure 1B, Antenna (19), column 2, lines 51-57, figure 3, column 7, lines 61-67,column 12, lines 34-39, and

An electronic communications circuit mounted to the support structure and including a recharging circuit (figure 1B, Integrated Circuit (IC) (32), column 7, lines 53-60, column 5, lines 66 to column 6, line 42).

Tuttle teaches a thin-film battery but does not teach the thin-film battery comprising a cathode layer: a solid-state electrolyte layer, and an anode layer deposited such that either the anode layer or the cathode layer is in electrical contact with the first conductive layer, and the electrolyte layer in contact with and completely separating the anode layer and the cathode layer.

Kwak teaches a thin film battery to operate small power devices such as micro machines, digital wrist watches and hearing aids where a typical thin-film rechargeable battery incorporates a metallic substrate to support layered components including in series, a metal oxide layer, a first electrode current collector, a first electrode, an electrolyte layer, a second electrode current collector and a second electrode layer where the electrolyte is in contact with and completely separating the anode layer and the cathode layer (figure 3, column 2, lines 24-40 and column 4, line 54 to column 5,

line16). It would have been obvious to one of ordinary skill in the art at the time of the invention realize in the design of Tuttle the battery architecture as discussed by Kwak since the arrangement of the layered components and the materials that comprise each individual layer play an important role in determining the specific capacity, the utility, and the performance of the battery cell.

Tuttle modified teaches a passive device where the operating power is provide by a capacitor structure located beneath the IC where a charge on the capacitor is maintained by conventional RF charging circuits on the IC which are energized from a remote source (column 10, lines 37-48). Tuttle modified does not teach the recharging circuit recharges a specific battery using energy received by a photovoltaic cell.

Little teaches an integrated thin film photovoltaic (solar cell) and battery that are made by employing thin film deposition techniques on a substrate (figure 1, column 2, lines 35-68). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tuttle modified with the photovoltaic of Little as a simple built in means to recharge the battery for battery based products including radio transceivers, portable computers, watches and calculators.

As to claim 23, Kwak of Tuttle modified teaches a thin film rechargeable battery where the anode and cathode layers may be formed from any suitable material including lithium (column 4, lines 40-65 and column 6, lines 31-67) does not teach wherein the anode or the cathode or both include an intercalation material or a metal or both.

Little teaches an integrated thin film photovoltaic (solar cell) and battery and discusses the need to suppress the formation of dendrite on the anodes of lithium batteries by the use of certain lithium alloys or by employing an intercalation compound as the anode (column 3, lines 40-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to recognize in the lithium battery of Tuttle modified the particular lithium alloys or compounds in lieu of pure lithium as taught by Little such that the lithium battery may be rechargeable rather than disposed when depleted.

As to claim 24, Tuttle does not teach the cathode layer comprises a lithium cobalt oxide deposited on the first conductive layer and the electrolyte layer comprises Lipon.

Kwak teaches a battery structure (figure 3, (20)), where the cathode layer comprises a lithium cobalt oxide deposited on the first conductive layer and the electrolyte layer comprises Lipon (figure 3, column 5, line 17 to column 6, line 67). It would have been obvious to one of ordinary skill in the art at the time of the invention realize in the design of Tuttle the battery architecture as discussed by Kwak since the arrangement of the layered components and the materials that comprise each individual layer play an important role in determining the specific capacity, the utility, and the performance of the battery cell.

3. Claims 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuttle et al. (U.S. Patent 6,078,791), Kwak et al. (U.S. Patent 6,208,875) and Little (U.S. Patent 4,740,431) and further in view of Lew et al. (U.S. Patent 6,608,464).

As to claims 27 and 29, Tuttle modified teaches an energy receiving device but does not teach the energy receiving device comprises an electromechanical electric generator or magnetic transducer.

Lew teaches an integrated power source layered with thin film rechargeable batteries, charger and charge controller where selection of the source of current delivered to the battery is under the control of an auto select charging unit (figure 10, column 7, lines 7-50). The three current sources are a Solar Cells (88), RF/ Microwave Induction Charger and Miniature Generator (94) (figure 3d, inductive charging: column 5, line 62 to column 6, line 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to expand the energy source of Tuttle modified to include the alternatives of Lew to ensure recharging of the batteries.

As to claims 28 and 30, Lew of the combination of Tuttle, Kwak, and Little teaches the selection of three sources to source the circuits and charge the battery (figure 10) but does not teach the energy receiving device comprises an acoustic transducer. However, since Lew teaches the idea of a variety of sources, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply any other suitable power source to Tuttle modified to ensure the device has available power to operate.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gehlot (U.S. Patent 6,181,237) discloses a worn device to alert by pressure an event comprised of a thin film battery and receiver. More (U.S. Patent 5,180,645) discloses an integral solid-state embedded power supply. Wood, Jr. (U.S. Patent 6,023,610) discloses a transceiver with thin film technology housed in a company badge or card. Kondo (U.S. Patent 6,294,722) discloses an integrated thin-film solar battery.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blane J Jackson whose telephone number is (703) 305-5291. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BJJ

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